

A review on the use of non-timber forest products in beauty-care in Bangladesh

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Abstract: This review describes the non-timber forest products (NTFPs) used for different aspects of beauty-care in Bangladesh on the basis of extensive literature survey. The diverse plant species, including used parts and using patterns for hair care, facial treatments and body care, were summarized in 13 tables. This paper accumulate the scattered knowledge regarding the use of plants in beauty-care in Bangladesh, to draw the extent of use of NTFPs in health care and to record the knowledge for assessing the possibilities of further implementation in herbal cosmetics industries. The structured knowledge can be used in policy making process for sustainable management of these valuable NTFPs leading to the conservation of the country's biological diversity. It is suggested that intensive field level research is necessary for securing sustainability of NTFPs.

Keywords: beauty care; non-timber forest products (NTFPs); Bangladesh

Introduction

The use of Non-Timber Forest Products (NTFPs) for health care is as old as human existence, the role and contribution of which in the welfare of people all over the world are crucial because of their richness of variety (Aiyeloja et al. 2006). Though beauty care refers to the use of plants for beautification purposes but in actual sense it is a type of health care also. Examining the prehistoric bodies in Europe scientists have found that the ancient people used gel substances to style their hair manufactured from plant oil and resin of *Pinus* species (Heino 2007). The women of Myanmar have been using the yellowish and scented bark and wood of the *Thanaka* tree (*Hesperethusa caenulata*) from generation to generation for keeping the complexion fair and smooth (FAO 2006). For more than 40 000 years the ‘Dreamtime’ (Spirits that created all features land, animals, plants etc. and they used plants as one of their totems) has been practiced by the

aboriginal Australians (Heino 2007). It is evident from the Veda, Ramayana, and other ancient Indian literature that oil extracted from Sandalwood was used as toiletries (Anon 1995). In Bangladesh, the use of plants for beauty-care is practicing from the ancient time particularly among the aboriginal communities and from past few decades the trend spread among the mainstream people which has now got the momentum (Yusuf et al. 1994.). The *Mro*, the till date forest dweller group in the country's northeastern hilly region use wild plants' extract for coloring teeth (Miah et al. 2003), whereas the *Shaiji*, a spiritual group in the southwestern plain region use some plants for hair care (Halim et al. 2007).

About three quarters of the world's population rely mainly on plants and plant extracts for health care. In the recent years, interest in the exploitation of medicinal and aromatic plants as pharmaceuticals, herbal remedies, flavorings, perfumes, cosmetics and other natural products has greatly increased (Rao et al. 2004). Traditionally women use cosmetics for health care, but recent studies show that men are also using cosmetics at an increasing rate, which is increasing the future of cosmetic industries. Natural cosmetic sales are increasing at a high rate with revenues doubling every few year in Europe. The growth rate of the use of Shea butter in USA market alone has been estimated at over 25% annually and continues to increase. In 2006, the Gulf Cooperation Council (GCC) market grew by 17% of its total market (Heino 2007). The increasing trend of using natural cosmetics has increased the demand for NTFPs in beauty-care and made the pharmaceuticals and beautification industries more profitable. For instance, in the 1990s the price of one ton San-

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dalwood was 0.3 million rupees in India, which now increased up to 3 million rupees per ton (Heino 2007).

Bangladesh is rich in floral diversity housing about 5000 plant species in her all the four forest types (i.e., tropical moist evergreen, tropical moist semi-evergreen, tropical deciduous and mangrove forests) (Yusuf et al. 1994), and most of the plants possess the medicinal and aromatic as well as cosmetic properties (Kadir 1990). The use of plants in beauty-care is practiced both traditionally and in modern time. The country is a larger producer and consumer of the natural cosmetics (FAO 2002). At present, 200 tons of dried rose, 2000 tons of *Aloe indica*, and 200 tons of Nim (*Azadirachta indica*) leaf are processed annually to meet the national demand for natural cosmetics (Dey 2006). There is an upright demand for the goods. However, most of these products are produced and processed locally without proper scientific basis resulting in the improper management of these valuable resources. If managed properly, these products could bring a lot of foreign currencies meeting the local needs and creating employment opportunities (Khan 1994). In contrast, the fact is that Bangladesh's earning from exporting medicinal and aromatic plants decreased to 0.16 million taka by the year 1992–1993 from 4.64 million taka in 1991–1992 (BES 1994).

Though a number of studies were conducted on different aspects of NTFPs earlier but no specific study was conducted on the use of these resources in beauty-care in Bangladesh. This study is based on extensive literature survey with the views to accumulate the scattered knowledge regarding the use of plants in beauty-care in Bangladesh, to draw the extent of use of NTFPs in health care and to record the knowledge for assessing the possibilities of further implementation in herbal cosmetics industries. The structured knowledge thus can be used in policy making process for sustainable management of these valuable NTFPs leading to the conservation of the country's biological diversity.

NTFPs in beauty-care

NTFPs used for manifold purposes of beauty-care in Bangladesh can be summarized as hair care (Tables 1–4), facial treatment (Tables 5–8) and body care (Tables 9–13). The following are the tabular representations of the outcome of extensive literature survey showing local name, scientific name, parts used of the plants and their using pattern followed by a column for references.

Table 1. Use of NTFPs to check hair fall and strengthen hair

Plants	Used parts	Using pattern	Reference
Aam (<i>Mangifera indica</i>)	Kernel	After grinding the kernel it is rubbed on the head and is kept for three hours a day and continued for one month.	Sensastri et al. 1996.
Amloki (<i>Phyllanthus emblica</i>)	Fruit	After grinding the fruit it is soaked in water for 5/6 hours. Then the mixture is sieved and is applied like oil.	Sensastri et al. 1996.
Kolke (<i>Thevetia peruviana</i>)	Seedling	After grinding it is made paste and applied on head.	Borua 1995.
Lotka	Fruit oil	Fruit oil is used on head.	Dey 1995.
Sal (<i>Shorea robusta</i>)	Fruit oil	Fruit oil is used on the head.	Dey 1995.
Chalta (<i>Dillenia indica</i>)	Fruit	Two spoonful juice of the ripe fruit of Chalta is mixed with water and eaten. In the case of green fruit it is ground and the juice is used as oil on head.	Borua 1995.
Joba (<i>Hibiscus rosasinensis</i>)	Flower, leaf	They are ground and made paste than use over your head.	Dey 1995
Thankuni (<i>Centella asiatica</i>)	Leaf	Juice obtained by grinding 5/6 leaves is eaten with 1 cup of milk and some sugar.	Sensastri et al. 1996.
Kesut pata (<i>Eclipta prostrata</i>)	Leaf	Leaves are ground and mixed with <i>Wedelia calcudulacea</i> juice and then applied round the head.	Dey 2006.
Mehedi (<i>Lawsonia inermis</i>)	Leaf	Leaves are ground well and boiled with <i>Terminalia chebula</i> and the mixture used twice a week round the head.	Sensastri et al. 1996.
Durba (<i>Cynodon dactylon</i>)	Leaf	Durba is boiled with coconut /mustard oil and is used oil on the head.	Sensastri et al. 1996.
Vula (<i>Hibiscus tiliaceus</i>)	Leaf	Juice obtained from grinding the leaves is mixed with honey and is applied over the head.	Dey 1995.
Vringoraj (<i>Wedelia caleundinacea</i>)	Leaf	The leaves are boiled and the water used in boiling is used for washing hair and is continued for 4/5 days.	Sensastri et al. 1996.
Dhonia (<i>Coriandrum sativum</i>)	Fruit	The leaves are boiled and the water used in boiling is used for washing hair and is continued for 4/5 days.	Sensastri et al. 1996.
Chandan (<i>Santalum album</i>)	Wood	Wood is ground and made paste which is applied over the head.	Dey 1995.
Bohera (<i>Terminalia belerica</i>)	Kernel	Ground kernel is mixed with water and the mixture is applied on the head.	Sensastri et al. 1996.
Black pepper (<i>Piper nigrum</i>)	Fruit	Onion juice is applied first before applying the ground mixture of black pepper and salt (NaCl) on the head.	Sensastri et al. 1996.
Bichuti (<i>Tragia involucrata</i>)	Fruit	Fruits are ground with water to make paste and the paste is applied on the head.	Dey 2006.
Til (<i>Sesamu indicum</i>)	Flower	Flower of Til is ground well with butter oil, and honey is coated round the head.	Sensastri et al. 1996.
Keshraj (<i>Eclipta prostrata</i>)	Leaf	Juice of leaves are used with coconut oil and then used on head.	Dey 2006.
Dutra (<i>Datura metel</i>)	Leaf	Leaves are ground well to make juice and the juice is used on head.	Rashid et al. 1990.
Nishinda (<i>Vitex negundo</i>)	Leaf	Juice of leaves is applied on head mixing it with coconut oil.	Dey 1995.
Monosha (<i>Euphorbia nerifolia</i>)	Glue	Glue is mixed with coconut oil and the mixture is used on the head.	Dey 1995.
Rashun (<i>Allium sativum</i>)	Pod/Vessel	Cloves are ground to make paste and are used on the head.	Dey 1995.
Bansh (<i>Bambusa</i> spp.)	Rhizome	It is burnt and the ash is mixed with Sesame oil and uses it over the head.	Sensastri et al. 1996.

Table 2. Use of NTFPs as anti-louse and anti-dandruff of hair

Plants	Used parts	Using pattern	Reference
Vringoraj (<i>Wedelia caleudulacea</i>)	Leaf	Leaves are ground well to make juice from it, which is used for 2/4 days on the head as anti-louse.	Sensastri et al. 1996.
Ghontacorno (<i>Clerodendrum viscosum</i>)	Leaf	Leaves are ground well to make Juice from it, which is applied round the head against louse.	Sensastri et al. 1996.
Dhonia (<i>Coriandrum sativum</i>)	Fruit, seed	8 spoonfuls of Dhonia seeds are soaked in 200-mg Sesamum oil for one week and after sieving it the oil is then applied to prevent louse on the head.	Sensastri et al. 1996.
Paan (<i>Piper betel</i>)	Leaf	Juice made from the leaves of Paan is used on the head.	Sensastri et al. 1996.
Kakmari (<i>Anamirta cocculus</i>)	Seed	Seeds are ground well with water and it is then used on the head against louse.	Dey 1995.
Tamak (<i>Nicotiana tabacum</i>)	Leaf	Leaves are soaked in water for 4 hours, and then the water is applied on the head.	Sensastri et al. 1996.
Ulatchandal (<i>Gloriosa superba</i>)	Leaf	Juice from the leaves is applied on the head.	Dey 1995.
Nim (<i>Azadirachta indica</i>)	Flower	Make a paste of the flower of Nim and use it over the head as an anti-louse.	Borua 1995.
Keya (<i>Pandanus odoratissimus</i>)	Leaf	Paste of leaves is used on the head to prevent louse.	Borua 1995.
Joba (<i>Hibiscus rosa-sinensis</i>)	Flower	Latex obtained from ground flowers is applied on the head as anti-dandruff.	Dey 1995.
Cha (<i>Chemelia chinensis</i>)	Leaf	Leaves are boiled and applied on head after adding some lemon juice to prevent dandruff.	Dey 2006.
Shioli (<i>Nyctanthes arbor-tristis</i>)	Seed	Seeds are made powder and it is spread on the head.	Borua 1995.
Dutra (<i>Datura metel</i>)	Fruit	Fruits are ground well with water and the paste is applied against dandruff.	Dey 1995.
Mehedi (<i>Lawsonia inermis</i>)	Leaf	Leaves are ground well to make juice with water and applied on the head.	Dey 1995.
Aam (<i>Mangifera indica</i>)	Kernel	Kernels are ground and mixed with milk and used over head against dandruff.	Dey 1995.
Nisinda (<i>Vitex negundo</i>)	Leaf	Juice from the leaves is mixed with oil and is applied on the head.	Dey 2006.
Lebu (<i>Citrus aurantifolia</i>)	Juice	Juice is mixed with castor oil and is used against dandruff.	Chokroborti 1989.

Table 3. Use of NTFPs to prevent hair turning grey and to make grey-hair black

Plants	Used parts	Using pattern	Reference
Aam (<i>Mangifera indica</i>)	Kernel	Ground kernel is mixed with <i>T. chebula</i> and milk. Then it is applied on the head to prevent hair turning grey.	Sensastri et al. 1996.
Mehedi (<i>Lawsonia inermis</i>)	Leaf	Leaves are ground well to make paste and applied on the hair turning grey.	Sensastri et al. 1996.
Bohera (<i>Terminalia belerica</i>)	Bark	Ground barks are mixed with water and the mixture is sieved well and is applied on the head.	Sensastri et al. 1996.
Amloki (<i>Phyllanthus emblica</i>)	Fruit	Fruits are ground well with water and the paste is used on head and kept for about 3 hours and is continued for one month.	Sensastri et al. 1996.
Korobi (<i>Nerium indicum</i>)	Bark	Bark is ground well and mixed with milk to be applied on the hair turning grey.	Sensastri et al. 1996.
Rashun (<i>Allium sativum</i>)	Clove	Juice of garlic used with coconut oil/mustard oil to prevent hair turning grey	Dey 1995.
Til (<i>Sesamu indica</i>)	Root	Roots are Ground well and applied it on the head to make grey hair black.	Dey 1995.
Chandan (<i>Santalum album</i>)	Woods	Make Powder of sandalwood and mixed it with easter oil and coffee. Thereafter it is boiled for about 20 minutes and applied on the grey hair.	Dey 1995.
Cha (<i>Chemelia chinensis</i>)	Leaf	Leaves of Tea, Henna and rose are boiled and gardened it on the head.	Dey 1995.
Kesut and Vringoraj (<i>Eclipta prostrate</i> and <i>Wedelia caleudulacea</i>)	Leaf	Juices obtained from the leaves of different species are applied on the grey hair after mixing them at equal proportion.	Dey 1995.
Tulsi (<i>Ocimum sanctum</i>)	Leaf	Leaves are ground well to make paste and applied it on the head.	Dey 1995.
Amloki (<i>Phyllanthus emblica</i>)	Fruit	Fruit of <i>P. emblica</i> and <i>T. belerica</i> are ground well and mixed with mustard oil and applied on the head.	Chokroborti 1989.

Table 4. Use of NTFPs as natural shampoo in hair

Plants	Used parts	Using pattern	Reference
Ritha (<i>Sapindus mukorossi</i>)	Fruit	Fruit is soaked in water and then boiled and sieved and the resulting water is used as shampoo.	Chokroborti 1989.
Amloki (<i>Amblica officinalis</i>)	Fruit	Fruit is soaked in water and then boiled and sieved and the resulting water is used as shampoo.	Dey 1995.
Beson (<i>Lens culinaris</i>)	Beson as a powder of pulses	The Beshon powder is mixed with the water to make paste and applied on the head.	Chokroborti 1989.

Table 5. Use of NTFPs to prevent acne and freckles

Plants	Used parts	Using patterns	Reference
Kotbel (<i>Feronia limonia</i>)	Green fruit	Juice of the green fruit is used over the face for some days.	Sensastri et al. 1996.
Motor Shuti (<i>Cicer arietinum</i>)	Seed, Fruit	Seeds/fruits are grounded well with water and applied on the face.	Sensastri et al. 1996.
Pial (<i>Buchanania lanza</i>)	Seed	The oil from the seeds is used on the face.	Borua 1995.
Kanokchapa (<i>Pterospermum acerifolium</i>)	Bark	Bark is ground to make it paste and applied on the face.	Borua 1995.
Chirta (<i>Swertia chirata</i>)	Stem	The stem is soaked with water for 8–10 hours and the mixture is sieved well to drink.	Sensastri et al. 1996.
Arjun (<i>Terminalia arjuna</i>)	Bark	Ground bark is mixed with honey and used as a coat over the face.	Rashid et al. 1990.
Chandan (<i>Santalum album</i>)	Wood	Ground wood is mixed with honey and rose-water and used over the face.	Najnin 1995.
Ghorakoroncha (<i>Ailanthus excelsa</i>)	Leaf	Leaves are ground well to make paste and used over the face.	Dey 1995.
Akand (<i>Calotropis gigantea</i>)	Leaf	The acne is pressed with the leaf	Rashid et al. 1990.
Chatim (<i>Alstonia scholaris</i>)	Gum	Gum is dried and made powder to spread over the wound due to infection from acne.	Sensastri et al. 1996; Dey 1995.
KeyaKanta (<i>Pandanus foetidus</i>)	Leaf	Juice obtained from the leaves is used on the face.	Dey 1995.
PathorKuchi (<i>Kalanchoe pinnata</i>)	Leaf	Juice obtained from the leaves is used on the face.	Borua 1995.
Jayfal (<i>Croton tigliu</i>)	Kernel	Grind the Kernel is ground well with water and the paste is used on the face.	Sensastri et al. 1996.
Sorisha; (<i>Brassica campestris</i>) Til (<i>Sesamum indicum</i>)	Til Seed	Oil obtained from the seed is used on the face.	Sensastri et al. 1996.
Puishakh (<i>Basella alba</i>)	Leaf	Leaf juice is applied on the face.	Borua 1995.
Phalsa (<i>Grewia asiatica</i>)	Leaf	Leaf juice is applied on the face.	Dey 1995.

Table 6. Use of NTFPs in removing dark rings under eyes and wrinkles on face

Plants	Used parts	Using pattern	Reference
Alu (<i>Solanum tuberosum</i>)	Skin	Skin is peeled off and ground well and applied as a coating near the eye.	Najnin 1995.
Sasha (<i>Cucumis sativus</i>)	Fruit	Put the slice of cucumber over the eye.	Najnin 1995.
Tomato (<i>Lycopersicon lycopersicum</i>)	Fruit	Juice of tomato is mixed with lemon and put it over the eye.	Najnin 1995.
Cha (<i>Chemelia chinensis</i>)	Leaf	Leaf is boiled first. Then a piece of cotton is soaked in it and put on the wrinkles.	Najnin 1995.

Table 7. Use of NTFPs in the treatment of teeth

Plants	Used parts	Using pattern	Reference
Bansh (<i>Bambusa</i> spp)	Whole plant	The ash of Bansh is used as tooth powder.	Borua 1995.
Tejpata (<i>Cinnamomum tamala</i>)	Leaf	Dried leaves are ground well to make powder and used as tooth powder.	Dey 1995.
Durba (<i>Cynodon dactylon</i>)	Leaf	Leaves are dried up and ground well to be used as tooth paste.	Dey 1995.
Holkosa (<i>Leucas lavandulae</i>)	Leaf	Juice obtained from leaves is boiled and then used for gargling.	Dey 1995.
Horitoki (<i>Terminalia chebula</i>)	Fruit	Fruits are ground well and used as tooth powder.	Dey 1995.
Potol (<i>Trichosanthes dioica</i>)	Fruit	Potol is boiled with 2 mg of Coriander seed and kernel of Horitoki and then eaten up.	Dey 2006.
Pudina (<i>Mentha viridis</i>)	Bark	The bark is dried up and ground to be used as tooth paste.	Dey 1995.
Vringoraj (<i>Wedelia caledulacea</i>)	Leaf	Juice obtained from leaves is used as coating.	Sensastri et al. 1996; Dey 2006.
Bokul (<i>Mimusops elengi</i>)	Fruit	Green fruits are chewed. Otherwise, the fruits are dried and ground well to make powder and used as tooth powder.	Dey 2006.
Peyara (<i>Psidium guajava</i>)	Leaf	Leaves are boiled in water and then gargled with the resulting water.	Najnin 1995.
Lojjaboti (<i>Mimosa pudica</i>)	Leaf with stem	After grinding the leaves with stem, the mixture is kept in mouth for 10/15 minute.	Dey 1995.
Lebu (<i>Citrus aurantifolia</i>)	Fruit	Juice is used with salt to brush the teeth.	Dey 1995; Dey 2006.
Piaj (<i>Allium cepa</i>)	Fruit	Green onion is eaten up.	Dey 1995.
Nim (<i>Azadirachta indica</i>)	Stem	The bark is dried up and ground and used as a tooth paste.	Chokroborti 1989.

Table 8. Use of NTFPs in removing bad smell from mouth

Plants	Used parts	Using patterns	Reference
Dumur (<i>Ficus racemosa</i>)	Leaf, Stem	Stem (tender)/leaf is boiled then sieved and is used for gargling.	Sensastri et al. 1996; Dey 2006.
Potol (<i>Trichosanthes dioica</i>)	Skin	Skin is peeled off and ground well to make juice from it and mixed with honey to eat.	Sensastri et al. 1996.
Khair (<i>Acacia catechu</i>)	Wood	Wood is soaked in water for some hours and the water is kept in mouth for few minutes.	Dey 1995.
Paan (<i>Piper betel</i>)	Leaf	Leaf is chewed.	Dey 1995.

Table 9. Use of NTFPs in body grace and treating bad odor

Plants	Used parts	Using patterns	Reference
Thankuni (<i>Centella asiatica</i>)	Leaf	Juice obtained from the leaves is eaten in admixture with one-cup milk and some sugar.	Sensastri et al. 1996; Dey 1995.
Polash (<i>Butea monosperma</i>)	Flower	The flower is ground and applied on the body.	Borua 1995.
Seed oil	Oil obtained from the seed is used on the body.		Borua 1995.
Amra (<i>Spondias pinnata</i>)	Bark	Bark is ground to make juice and is taken one spoonful juice daily.	Dey 1995.
Daab (<i>Cocos nucifera</i>)	Juice	Juice from the green Daab is mixed with the ground garlic, honey, and milk and covered the body with the mixture.	Najnin 1995.
Khoitomi (<i>Althaea officinalis</i>)	Root	Root is grinded and spread over the body.	Dey 1995.
Chandan (<i>Santalum album</i>)	Oil of wood; Wood	Oil is used on the body for body grace and well grounded wood-paste is massaged on the body to remove bad odor.	Sanonda 1995; Dey 1995; Najnin 1995.
Goalelta (<i>Adiantum capillus-Veneris</i>)	Juice	Juice obtained from different parts is used.	Dey 1995.
Lajjaboti (<i>Mimosa pudica</i>)	Whole plant	Leaves are boiled and massaged on the body.	Sensastri & Chokroborti 1996.
Mehedi (<i>Lawsonia inermis</i>)	Leaf	Leaves are boiled with water and the water is used for taking bath.	Sensastri et al. 1996.
Bel (<i>Aegle marmelos</i>)	Leaf	Juice of the leaf is mixed with water and massaged on the body.	Rashid et al. 1990.
Tejpata (<i>Cinnamomum tamala</i>)	Leaf	Leaves are ground and massaged on the body.	Dey 2006.
Boro Elachi (<i>Amomum subulatum</i>)	Fruit	The fruit is ground with water and massaged on the body.	Dey 1995.
Basak (<i>Adhatoda vasica</i>)	Leaf	Juice of the leaf is mixed with water and spread over the body.	Sensastri et al. 1996.

Table 10. Use of NTFPs in removing cracks in legs and hands

Plants	Used parts	Using patterns	Reference
Aam (<i>Mangifera indica</i>), Bot (<i>Ficus bengalensis</i>), Sheora (<i>Streblus asper</i>)	Latex	Latex is applied at cracked place.	Sensastri et al. 1996.
Alu (<i>Solanum tuberosum</i>)	Whole rhizome	Boiled rhizome is churned with hand and is applied on the cracked place.	Anon 1994.
Dhutra (<i>Datura metel</i>)	Leaf	Ground leaves are mixed with mustard oil and applied on the crack.	Dey 1995.
Haldu (<i>Adina cordifolia</i>)	Fruit	Ground turmeric is applied at the crack mixing with glycerin.	Chokroborti 1989.
Golap (<i>Rosa damacena</i>)	Flower	Rose water mixed with glycerin is covered the crack.	Chokroborti 1989.

Table 11. Use of NTFPs in softening harsh skin and removing black spots on neck

Plants	Used parts	Using patterns	Reference
Amloki (<i>Amblica officinalis</i>)	Fruit	Fruits are ground well with water to be made paste and is applied.	Dey 1995.
Maloti (<i>Aganosma dichotoma</i>)	Leaf	Leaves are ground well with water to be made paste and is applied.	Borua 1995.
Amra (<i>Spondias pinnata</i>)	Bark	One spoonful juice obtained form grinding the bark is taken daily.	Dey 2006.
Chandan (<i>Santalum album</i>)	Wood	Oil obtained from the wood is massaged on the harsh skin.	Najnin 1995.
Lebu (<i>Citrus spp</i>)	Fruit	Juice obtained from fruit is massaged with salt/sugar on the affected place.	Borua 1995.
Rashun (<i>Allium sativum</i>)	Clove	Cloves are ground well to be made paste and the paste is applied on the affected place for about 7 days.	Anon 1995.
Halud (<i>Curcuma domestica</i>)	Fruit	Tumeric is ground well with Beshon and milk and the paste is applied on the neck.	Borua 1995.
Beson (Powder of pulses) (<i>Lens culinaris</i>)	Beson as a powder of pulses	Beson is mixed with lemon juice to be made paste and the paste is applied on the neck.	Borua 1995.

Table 12. Use of NTFPs to increase brightness of the complexion

Plants	Used	Using patterns	Reference
Basak (<i>Adhatooda vasica</i>)	Leaf	Juice obtained from the leaves is mixed with powder of Conch-shell and massaged on the body.	Sensastri et al. 1996.
Halud (<i>Curcuma domestica</i>)	Fruit	Coconut/mustered oil is mixed with ground Halud and massaged on the body.	Sensastri et al. 1996.
Arohor (<i>Cajanus cajan</i>)	Fruit	Paste obtained from Fruit is massaged on the body.	Sensastri et al. 1996.
Daab (<i>Cocos nucifera</i>)	Juice	Juice of green Daab is applied on the body.	Chokroborti 1989.
Komlalebu (<i>Citrus aurantium</i>)	Skin	Skin of orange is ground well and mixed with honey and curd. Then the paste is applied on the body.	Chokroborti 1989.
Chandan (<i>Santalum album</i>)	Wood	A piece of Chandan wood is rubbed on a rough surface with water to get paste and the paste is coated on the face.	Chokroborti 1989.
Lebu (<i>Citrus aurantifolia</i>)	Fruit	Juice obtained from the fruits is mixed with the powder of Conch-shell and then used.	Chokroborti 1989.
Shasha (<i>Cucumis sativus</i>)	Fruit	Juice obtained from the fruit is applied on the face.	Chokroborti 1989.
Motor Shuti	Fruit	Soak the fruits in water then grind them to make paste and applied on the face.	Sensastri et al. 1996.
Chirata (<i>Swertia chirata</i>)	Stem	Soak the stem in water and drink the water in admixture of molasses and turmeric.	Najnin 1995.
Gajor (<i>Daucus carota</i>)	Fruit	Fruit is ground well and mixed with sour curd. The paste is then applied on the face.	Najnin 1995; Hosain et al. 1998.
Korobi (<i>Nerium indicum</i>); shioli (<i>Jasminum auriculatum</i>)	Flower	Flower is ground well and the paste is applied on the face.	Borua 1995.
Kadam (<i>Anthocephalus chinensis</i>)	Pollen	Pollens are ground well and the paste is applied on the face.	Borua 1995.
Tejpata (<i>Cinnamomum tamala</i>)	Leaf	Leaves are ground well and the paste is applied on the face.	Dey 1995.

Table 13. Use of NTFPs in removal of fat

Plants	Used	Using patterns	Reference
Sal (<i>Shorea robusta</i>)	Bark	Juice obtained from the bark is taken.	Borua 1995.
Dewa (<i>Artocarpus lacucha</i>)	Fruit	Juice from the green fruit is taken with water.	Borua 1995.
Pitraj (<i>Aphanamixis polystachya</i>)	Fruit, Seed	The oil obtained from fruit/seed is used for this purpose.	Borua 1995.
Sheuli (<i>Nyctanthes arbor-tristis</i>)	Bark, leaf	Bark is ground and eaten or juice obtained from leaves is eaten.	Borua 1995.
Tentul (<i>Tamarindus indica</i>)	Fruit	When people eating extra fruit extra fat can be released.	Dey 1995.
Bot (<i>Ficus bengalensis</i>)	Bark	Bark is ground and soaked with one cup of hot water for 1 night. Then sieved it and eaten twice daily.	Sensastri et al. 1996.
Khair (<i>Acacia catechu</i>)	Wood	Wood is boiled with water and the water is taken.	Rashid et al. 1990.
Lebu (<i>Citrus spp.</i>)	Fruit	Juice obtained from the fruits is taken.	Dey 1995.
Korola (<i>Momordica charantea</i>)	Fruit	When people eating cooked Korola extra fat can be released.	Sensastri et al. 1996.

Conclusion

Non-timber forest products have active ingredients used in curing ailments, and aromatic compounds used as sources of flavors and fragrances- realized from the study. People in Bangladesh are using NTFPs for their beauty-care in different forms and patterns, i.e. in hair care for checking hair fall, as antidandruff, removing baldness etc.; in facial treatment to prevent acne and freckles, wrinkle of face, bad smell from mouth etc; in body care for body grace, to remove bad odor from body, softening harsh skin, removal of fat etc.. They are using different plant parts

(seed, fruit, bark, wood, stem, leaf, root, flower, rhizome, pollen etc.) in association with other ingredients like conch shell, milk, sugar, honey, salt, water etc and applying them in systematic doses. The importance of NTFPs as therapeutic agents and their role in beauty care and economies of developing countries is well recognized. This includes not only their use for beauty care but also the industrialization of NTFPs that creates employment opportunities. Beside these, having no side-effect of natural cosmetics, NTFPs are becoming popular at an increasing rate among all irrespective of age, gender, race and religion. In Bangladesh there is also an increasing trend of demand for the natural cosmetics which is ultimately leading people to the dev-

astating form of harvesting NTFPs. To ensure sustainable management, scrupulous harvesting in a prescribed manner is essential. But unfortunately there is a lacking of proper management system of the NTFPs in the country. If the knowledge regarding the using pattern of these NTFPs in different purposes is properly documented, stored and managed, strong baseline information for sustainable management and policy formulation will then be possible. This article containing necessary information fully based on the review of secondary literatures on a specific use of NTFPs may provide some sort of important clues in this regard. In the present era of growing needs for the growing population, the matter of sustainable utilization and management of natural resources should get the foremost priority. Keeping such perception into consideration, domestication of NTFPs for the benefits of both the farmers and the environment is necessary. Prospects for the success can never be improved if the benefits can not be ensured completely. But there exists policy constraints that appear against smallholder farmer in starting entrepreneurial activities with NTFPs. The policy and institutional aspects of both the domestication and commercialization of NTFPs used in beauty care are crucial for the realization of social benefits in the form of poverty alleviation through employment as well as environmental amelioration through richness of biological diversity.

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